

submitted with the Information Disclosure Statement as it was filed on August 24, 2001. A return receipt postcard was also filed with the Information Disclosure Statement. On this return receipt postcard it is indicated that copies of 136 references were filed with the Information Disclosure Statement. This return receipt postcard was received, accepted and stamped by the U.S. Patent and Trademark Office. A copy of this stamped return receipt postcard is also attached to this response. Copies of all of the references cited in the Information Disclosure Statement were properly filed with the Information Disclosure Statement. Further, the references submitted in the Information Disclosure Statement were identified by inventor, patent number and issue date on the form PTO-1449. Accordingly, the references submitted with the Information Disclosure Statement should therefore be considered.

Rejections Under 35 U.S.C. § 102

Within the Office Action, Claims 1-4, 6, 7, 9-13, 15, 17-20, 22, 23, 25-28, 30, 31, 33-35, 37, 38, 40-42, 44 and 45 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,516,371 to Lai et al. (hereinafter "Lai"). The applicants respectfully disagree with this rejection.

Lai teaches a network interface device for buffering data wherein the device includes a random access memory, a read offset register configured to store read pointer information, and a read controller configured to read data stored in the random access memory based on the read pointer information. Lai teaches a method to read data stored in the random access memory based on the contents of the read offset register. However, Lai teaches a network interface device that is only capable of reading and writing data as directed by a host CPU, separate from the network interface device, "[i]n the present invention, a receive byte offset register is used that enables the host CPU to begin reading a data frame from the SRAM memory 18 starting from any particular byte, as well as change the starting byte," [Lai, col. 6, lines 50-54]. Lai does not teach a network interface device that generates an output stream of data by executing a series of program instructions and data stored within a first-in first-out buffer. The device taught by Lai only acts as a flexible buffer wherein the data in the buffer may be accessed in any order by the host CPU.

Lai teaches using a first-in first-out buffer in a network interface device for storing transmit and receive data. [Lai, col. 1, lines 23-29] However, Lai does not teach executing a series of program instructions or performing operations on the data stored within the first-in first-out buffer. Lai does not teach or claim a device that can generate an output stream of data by executing a series of program instructions. Lai also does not teach executing a series of program

instructions and performing the operations on the stream of data stored in a first-in first-out buffer.

Lai teaches away from using a first-in first-out buffer in the network interface device. Specifically, Lai teaches that

[t]here is a need for an arrangement that enables the use of a random access memory in a network interface device, as opposed to a FIFO buffer, to store a data frame and to provide flexibility in reading the data frame.
[Lai, col. 1, lines 48-52]

In contrast to the teachings of Lai, the programmable first-in first-out buffer of the present invention receives a stream of data to be buffered within the first-in first-out buffer and then output from the first-in first-out buffer. The programmable first-in first-out buffer includes the ability to receive program instructions from an application or control circuit to perform specific operations on the stream of data before the data is provided as an output from the programmable first-in first-out buffer. By performing the specific operations of the program instructions, the programmable first-in first-out buffer has the ability to filter the stream of data as it passes through the first-in first-out buffer, including re-ordering data within the first-in first-out buffer, if appropriate, and also to synchronize the input and output of the stream of data with external input and output signals, respectively. As discussed above, Lai does not teach executing a series of program instructions and performing the operations on the stream of data stored in a first-in first-out buffer.

The independent Claim 1 is directed to a method of buffering data within a first-in first-out buffer. The method of Claim 1 comprises receiving a stream of data to be buffered within the first-in first-out buffer, storing the stream of data within the first-in first-out buffer thereby forming a stored stream of data, obtaining a series of program instructions specifying operations to be performed on the stored stream of data and generating an output stream of data by executing the series of program instructions and performing the operations on the stored stream of data. As discussed above, Lai does not teach obtaining a series of program instructions specifying operations to be performed on the stored stream of data in the first-in first-out buffer. Lai also does not teach generating an output stream of data by executing the series of program instructions and performing the operations on the stored stream of data in the first-in first-out buffer. For at least these reasons, the independent Claim 1 is allowable over the teachings of Lai.

Claims 2-4, 6, and 7 depend on the independent Claim 1. As described above, the independent Claim 1 is allowable over the teachings of Lai. Accordingly, Claims 2-4, 6, and 7 are also allowable as being dependent on an allowable claim.

The independent Claim 9 is directed to a method of buffering data within a first-in first-out buffer. The method of Claim 9 comprises receiving a stream of data to be buffered within the first-in first-out buffer, storing the stream of data within the first-in first-out buffer thereby forming a stored stream of data, obtaining a series of program instructions specifying operations to be performed in relation to the stored stream of data and generating an output stream of data by executing the series of program instructions and performing the operations in relation to the stored stream of data, including synchronizing the output stream of data to a time reference. As discussed above, Lai does not teach obtaining a series of program instructions specifying operations to be performed in relation to the stored stream of data in the first-in first-out buffer. Lai also does not teach generating an output stream of data by executing the series of program instructions and performing the operations in relation to the stored stream of data in the first-in first-out buffer. For at least these reasons, the independent Claim 9 is allowable over the teachings of Lai.

Claims 10-13 and 15 depend on the independent Claim 9. As described above, the independent Claim 9 is allowable over the teachings of Lai. Accordingly, Claims 10-13 and 15 are also allowable as being dependent on an allowable claim.

The independent Claim 17 is directed to an apparatus for buffering data within a first-in first-out buffer. The apparatus of Claim 17 comprises means for receiving a stream of data to be buffered within the first-in first-out buffer, means for storing the stream of data within the first-in first-out buffer thereby forming a stored stream of data, means for obtaining a series of program instructions specifying operations to be performed on the stored stream of data and means for generating an output stream of data by executing the series of program instructions and performing the operations on the stored stream of data. As discussed above, Lai does not teach a means for obtaining a series of program instructions specifying operations to be performed on the stored stream of data in the first-in first-out buffer. Lai also does not teach a means for generating an output stream of data by executing the series of program instructions and performing the operations on the stored stream of data in the first-in first-out buffer. For at least these reasons, the independent Claim 17 is allowable over the teachings of Lai.

Claims 18-20, 22, and 23 depend on the independent Claim 17. As described above, the independent Claim 17 is allowable over the teachings of Lai. Accordingly, Claims 18-20, 22, and 23 are also allowable as being dependent on an allowable claim.

The independent Claim 25 is directed to a programmable first-in first-out buffer. The programmable first-in first-out buffer of Claim 25 comprises an input interface circuit configured to receive a stream of data to be buffered within the first-in first-out buffer, a data memory coupled to the input interface circuit to store the stream of data, thereby forming a stored stream of data, a program memory configured to obtain and store a series of program instructions specifying operations to be performed on the stored stream of data and an execution unit coupled to the program memory and to the data memory to generate an output stream of data by executing the series of program instructions and perform the operations on the stored stream of data. As discussed above, Lai does not teach a program memory within a first-in first-out buffer configured to obtain and store a series of program instructions specifying operations to be performed on the stored stream of data in the first-in first-out buffer. Lai also does not teach an execution unit coupled to the program memory and to the data memory to generate an output stream of data by executing the series of program instructions and perform the operations on the stored stream of data in the first-in first-out buffer. For at least these reasons, the independent Claim 25 is allowable over the teachings of Lai.

Claims 26-28, 30, and 31 depend on the independent Claim 25. As described above, the independent Claim 25 is allowable over the teachings of Lai. Accordingly, Claims 26-28, 30, and 31 are also allowable as being dependent on an allowable claim.

The independent Claim 33 is directed to a system comprising a bus interface circuit configured to couple to a bus structure and receive a stream of data, a data memory coupled to the bus interface circuit to store the stream of data, thereby forming a stored stream of data, wherein the data memory stores and outputs the stored stream of data, thereby forming an output stream of data, a program memory configured to obtain and store a series of program instructions specifying operations to be performed on the stored stream of data and an execution unit coupled to the program memory and to the data memory to generate the output stream of data by executing the series of program instructions and performing the operations on the stored stream of data. As discussed above, Lai does not teach a program memory configured to obtain and store a series of program instructions specifying operations to be performed on the stored stream of data. Lai also does not teach an execution unit coupled to the program memory and to the data memory to generate the output stream of data by executing the series of program instructions and performing the operations on the stored stream of data. For at least these reasons, the independent Claim 33 is allowable over the teachings of Lai.

Claims 34, 35, 37, and 38 depend on the independent Claim 33. As described above, the independent Claim 33 is allowable over the teachings of Lai. Accordingly, Claims 34, 35, 37, and 38 are also allowable as being dependent on an allowable claim.

The independent Claim 40 is directed to a network of devices. The network of devices of Claim 40 comprises a plurality of devices, a bus structure coupled between the plurality of devices to transmit data between the devices and a programmable first-in first-out buffer including an input interface circuit configured to receive a stream of data to be buffered within the first-in first-out buffer, a data memory coupled to the input interface circuit to store the stream of data, thereby forming a stored stream of data, a program memory configured to obtain and store a series of program instructions specifying operations to be performed on the stored stream of data and an execution unit coupled to the program memory and to the data memory to generate the output stream of data by executing the series of program instructions and performing the operations on the stored stream of data. As discussed above, Lai does not teach a program memory within a first-in first-out buffer configured to obtain and store a series of program instructions specifying operations to be performed on the stored stream of data in the first-in first-out buffer. Lai also does not teach an execution unit coupled to the program memory and to the data memory to generate an output stream of data by executing the series of program instructions and perform the operations on the stored stream of data in the first-in first-out buffer. For at least these reasons, the independent Claim 40 is allowable over the teachings of Lai.

Claims 41, 42, 44, and 45 depend on the independent Claim 40. As described above, the independent Claim 40 is allowable over the teachings of Lai. Accordingly, Claims 41, 42, 44, and 45 are also allowable as being dependent on an allowable claim.

Rejections under 35 U.S.C. §103

Within the Office Action, Claims 5, 8, 14, 16, 21, 24, 29, 32, 36, 39, 43 and 46 have been rejected under 35 U.S.C. §103(a) as being obvious over Lai. The Applicants respectfully disagree with this rejection.

Claims 5 and 8 are dependent upon the independent Claim 1. As discussed above, Claim 1 is allowable over the teachings of Lai. Accordingly, Claims 5 and 8 are allowable as being dependent upon an allowable base claim.

Claims 14 and 16 are dependent upon the independent Claim 9. As discussed above, Claim 9 is allowable over the teachings of Lai. Accordingly, Claims 14 and 16 are allowable as being dependent upon an allowable base claim.

Claims 21 and 24 are dependent upon the independent Claim 17. As discussed above, Claim 17 is allowable over the teachings of Lai. Accordingly, Claims 21 and 24 are allowable as being dependent upon an allowable base claim.

Claims 29 and 32 are dependent upon the independent Claim 25. As discussed above, Claim 25 is allowable over the teachings of Lai. Accordingly, Claims 29 and 32 are allowable as being dependent upon an allowable base claim.

Claims 36 and 39 are dependent upon the independent Claim 33. As discussed above, Claim 33 is allowable over the teachings of Lai. Accordingly, Claims 36 and 39 are allowable as being dependent upon an allowable base claim.

Claims 43 and 46 are dependent upon the independent Claim 40. As discussed above, Claim 40 is allowable over the teachings of Lai. Accordingly, Claims 43 and 46 are allowable as being dependent upon an allowable base claim.

For the reasons given above, the Applicants respectfully submit that Claims 1-46 are now in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, he is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
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Dated: September 23, 2003

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CERTIFICATE OF MAILING (37 CFR § 1.8(a))

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Date: 9-23-03 By: Jonathan O. Owens